City of Pierce (Surface Water) PWS # 2180027
SOURCE WATER ASSESSMENT REPORT

Final Report
March 6, 2001

State of Idaho
Department of Environmental Quality

Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the watershed characteristics.

This report, *Source Water Assessment for City of Pierce, Idaho,* describes the public drinking water system, the zone boundary of water contribution, and the associated potential contaminant sources located within these boundary. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The City of Pierce drinking water system consists of two surface intake pipes on Canal Creek located ¼ mile north of town on Canal Creek Road. One pipe is anchored three feet below water level and the other pipe is anchored four feet below water level. Both pipes have slotted screen filters. There is no additional intake filtering system. From the intakes, water from Canal Creek is gravity fed to a reservoir where it is then piped to the Keystone Direct mixed media filter water treatment plant and gas chlorination prior to distribution to users. Sampling of treated water in 1998 detected trace amounts of the synthetic organic contaminant atrazine.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

For the City of Pierce, source water protection activities should focus on implementation of practices aimed at reducing the effects of bacterial sources related to storm water runoff and forest practices within the designated source water areas. Most of the designated areas are outside the direct jurisdiction of City of Pierce. Partnerships with state and local agencies and any future development in the source water areas should be established and are critical to success. Due to the fairly short time associated with the movement of surface waters, source water protection activities should be aimed at short-term management strategies with the development of long-term management strategies to counter any future contamination threats. Source water protection activities should be coordinated with the Soil and Water Conservation District, and the Natural Resources Conservation Service, the U.S. Forest Service and the Idaho Dept. of Lands.

A community with a fully developed source water protection program will incorporate many strategies. For assistance in developing protection strategies please contact the Lewiston Regional Office of the Idaho Department of Environmental Quality or the Idaho Rural Water Association.

Water quality tests have shown past detections of SOCs leading to an automatic high susceptibility in this category. Water quality tests have not shown any IOCs, VOCs, total coliform bacteria, fecal coliform bacteria or *E-coli* bacteria above drinking water standard Maximum Contaminant Levels (MCLs). Therefore, the intakes score low susceptibility for IOCs, VOCs and microbial contaminants.

SOURCE WATER ASSESSMENT FOR CITY OF PIERCE, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this source means.** A map showing the delineated source water assessment area, map showing the entire watershed contributing to the delineated area, map showing the twenty-four (24) hour emergency response delineation, and the inventory of significant potential sources of contamination identified within the delineated area are attached. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is attached.

Background

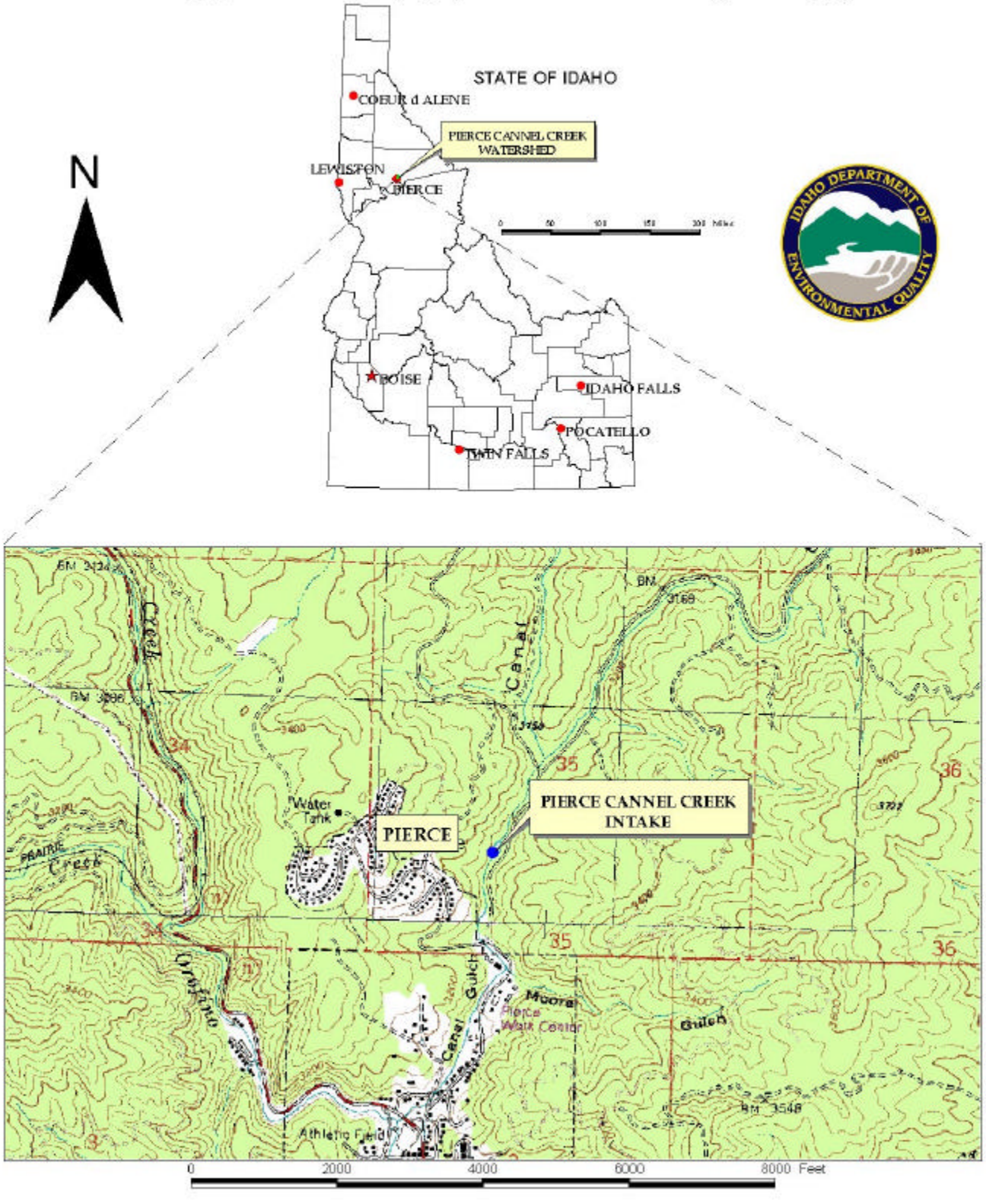
Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the intakes and watershed characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should <u>not be</u> used as an absolute measure of risk and they should <u>not be</u> used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality (DEQ) recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a source water protection program should be determined by the local community based on its own needs and limitations. Source water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

FIGURE 1. Geographic Location & Topographic Watershed Delineation for the City of Pierce



Section 2. Conducting the Assessment

General Description of the Source Water Quality

Pierce, Idaho is a community of approximately 760 people, located 60 miles east of Lewiston, Idaho (Figure 1). The City of Pierce drinking water system consists of two surface intake pipes on Canal Creek located ¼ mile north of town on Canal Creek Road. One pipe is anchored three feet below water level and the other pipe is anchored four feet below water level. Both pipes have slotted screen filters. There is no additional intake filtering system. Water from Canal Creek is then gravity fed to the Keystone Direct filter rapid sand mix media water treatment plant for gas chlorination prior to distribution to users.

The primary water quality issue currently facing the City of Pierce drinking water surface intake is that of potential contamination of Canal Creek and the problems associated with managing this contamination. The past detection of atrazine suggests that man-caused contamination can occur to the City drinking water supply.

Defining the Zones of Contribution--Delineation

To protect surface water systems from potential contaminant pathways, the EPA required that the entire drainage basin be delineated upstream from the intake to the hydrologic boundary of the drainage basin (U.S. EPA, 1997b). The delineation process established a physical area around the surface water intake that became the focal point of the assessment. The Canal Creek drainage basin consists of approximately 3,540 acres.

The delineated source water assessment area for the City of Pierce can best be described as a undeveloped forested recreational. The actual data used by DEQ in determining the source water assessment delineation area are available upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of surface water contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases. The dominant land use outside of the City of Pierce is undeveloped forested recreational. Land use within Pierce City limits consists of residential homes, small businesses, and light manufacturing.

It is important to understand that a release may never occur from a potential source of contamination provided best management practices are being used at the facility. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for

contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, such as educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply intake.

Contaminant Source Inventory Process

A contaminant inventory of the study area was conducted during August 2000. This involved identifying and documenting potential contaminant sources within the Pierce Source Water Assessment Area through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. A map showing the delineated area with the potential contaminant sources is included (Figure 2).

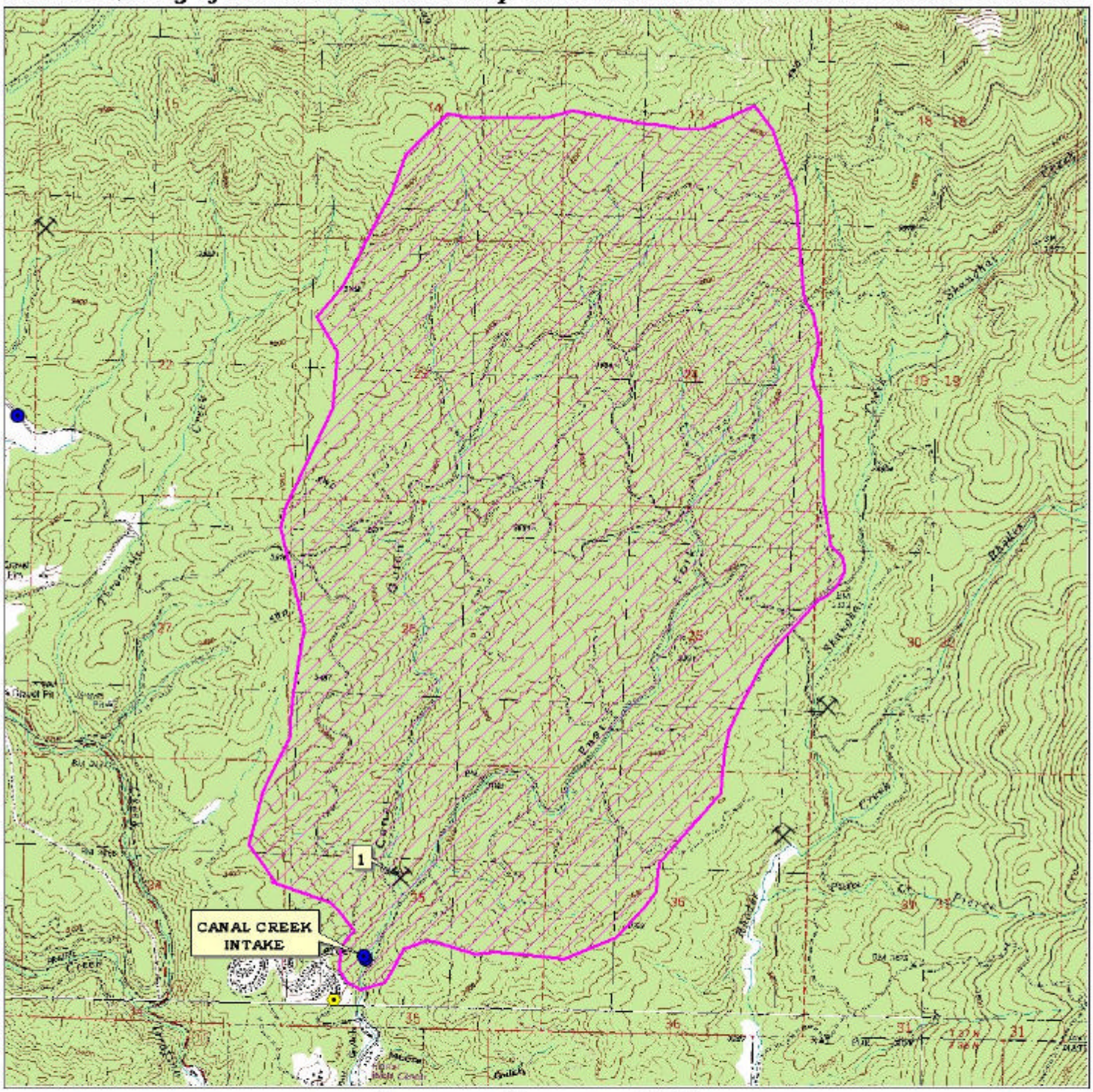
A total of two potential contaminant sites are located within the delineated source water areas (see Table 1). One potential contaminant source is a log cutting operation and the other potential contaminant source is a mining prospect (Figure 2). Table 1 lists the potential contaminants of concern and information source.

Table 1. City of Pierce, Potential Contaminant Inventory

SITE #	Source Description[1]	Source of Information	Potential Contaminants[1]
1	Light Industry	Database Search	VOC, SOC
2	Mine Site	Database Search	IOC

[1]IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

FIGURE 2. City of Pierce Delineation Map and Potential Contaminant Source Locations



LEGEND

- Time of Travel Zones
- Watershed
- Wellhead / Intake
- Enhanced Inventory
- CERCLIS Site
- RICRIS Site
- AST
- Dairy
- LUST Site
- Closed UST Site
- Open UST Site
- Business Mailing List
- NPDES Site
- Mine
- Toxic Release Inventory
- SARA Title III Site (EPCRA)
- Recharge Point
- Injection Well
- Groupt Site
- Cyanide Site
- Landfill
- Wastewater Land App Site

N

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY

PWS# 2180027
CANAL CREEK INTAKE

Section 3. Susceptibility Analyses

The susceptibility of the source to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity and construction of the intake, land use characteristic, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility ranking relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each intake is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. The following summaries describe the rationale for the susceptibility ranking.

Intake Construction

The construction of the City of Pierce public water system intake directly affects the ability of the intake to protect the source from contaminants. The City of Pierce drinking water system consists of two surface intake pipes from a pond adjoining Canal Creek located ¼ mile north of town on Canal Creek Road. The two pipes are stationed three feet and four feet respectively below water level. Both pipes have slotted screen filters. Water from Canal Creek is then gravity fed to a water treatment plant where it is gas chlorinated prior to distribution to users. Surface water intakes situated in water bodies with no infiltration gallery present are particularly vulnerable to a variety of contaminants. Therefore, the physical construction of the City of Pierce drinking water intake is rated as high risk.

Potential Contaminant Source and Land Use

The Pierce drinking water intake is located in an area with minimal upstream development and with no major roads. There are no obvious threats to water quality other than the inherent threat present for all unfiltered surface intakes.

Final Susceptibility Ranking

Water quality tests have shown past detections of SOCs leading to an automatic high susceptibility in this category. Water quality tests have not shown any IOCs, VOC's, total coliform bacteria, fecal coliform bacteria or *E-coli* bacteria above drinking water standard Maximum Contaminant Levels (MCLs). Therefore, the intakes score low susceptibility for IOCs, VOCs and microbial contaminants. With no apparent contaminant sources and minimal upstream development the facility's overall risk ranking is low.

Table 2. Summary of City of Pierce Susceptibility Evaluation[1]

Intake	Contaminant Inventory				System Construction	**Final Susceptibility Ranking**			
	IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
1	L	L	L	L	H	L	L	L (H*)	L
2	L	L	L	L	H	L	L	L (H*)	L

[1]H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility

Susceptibility Summary

The City of Pierce drinking water system has no significant contaminant sources within the delineated watershed. However, the system rates high in susceptibility in the SOC category due to past contaminant detections. The system also rates high in susceptibility in the construction category. The pond located between the creek and intake provides some additional protection.

Section 4. Options for Source Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require education and surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective source water protection program is tailored to the particular local source water protection area. A community with a fully developed source water protection program will incorporate many strategies. For City of Pierce, source water protection activities should focus on environmental education with recreational users, residents and other activities within the vicinity of the Canal Creek watershed. Due to the relatively short time involved with the movement of surface water, source water protection activities should be aimed at short-term management strategies with an emphasis on dealing with long-term future impacts from these same sources. Source water protection activities should be coordinated with the U.S. Forest Service, Idaho Department of Lands and other agencies with lands and jurisdiction within the delineated source water area. The surface water sources possess adequate quality and yield. An investigation of the feasibility of a shift to potential ground water sources to augment or replace the current surface water system should be considered.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Lewiston Regional DEQ Office (208) 799-4370

State DEQ Office (208) 373-0502

Website: http://www2.state.id.us/deq

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with above-ground storage tanks

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of storm water runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Idaho Department of Agriculture, 1998. Unpublished Data.

EPA (U.S. Environmental Protection Agency), 1997, State Methods for Delineating Source Water Protection Areas for Surface Water Supplied Sources of Drinking Water, EPA 816-R-97-008, 40p.

U.S. Government Printing Office, 1995, Code of Federal Regulations, 40 CFR 112, Appendix C-III, Calculation of the Planning Distance

Idaho DEQ, Nov., 2000, State of Idaho, Information Management System (DWIMS).

Attachment A

City of Pierce
Susceptibility Analysis
Worksheet

The final scores for the susceptibility analysis were determined from the addition of the Potential Contaminant Source/Land Use Score and Source Construction Score.

Final Susceptibility Scoring:

0 - 7 Low Susceptibility

8 - 15 Moderate Susceptibility

> 16 High Susceptibility

Surface Water Susceptibility Report **Public Water System Name : PIERCE CITY OF** **Source: CANAL CR** **Public Water System Number 2180027**

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1. System Construction		SCORE
Intake structure properly constructed	NO	1
Infiltration gallery or well under the direct influence of Surface Water	YES	2
	Total System Construction Score	3

2. Potential Contaminant Source / Land Use		IOC Score	VOC Score	SOC Score	Microbial Score
Predominant land use type (land use or cover)	BASALT FLOW, UNDEVELOPED, OTHER	0	0	0	0
Farm chemical use high	NO	0	0	0	
Significant contaminant sources *	NO				
Sources of class II or III contaminants or microbials	present within the small stream segment of	0	0	0	0
Agricultural lands within 500 feet	NO	0	0	0	0
Three or more contaminant sources	NO	0	0	0	0
Sources of turbidity in the watershed	NO	0	0	0	0
	Total Potential Contaminant Source / Land Use Score	0	0	0	0
3. Final Susceptibility Source Score		2	2	2	2
4. Final Source Ranking		Low	Low	Low	Low